# Advanced Linux Prototype System (ALPS) Workstation Development for HMT and Other Workstation Testbed Activities in GSD

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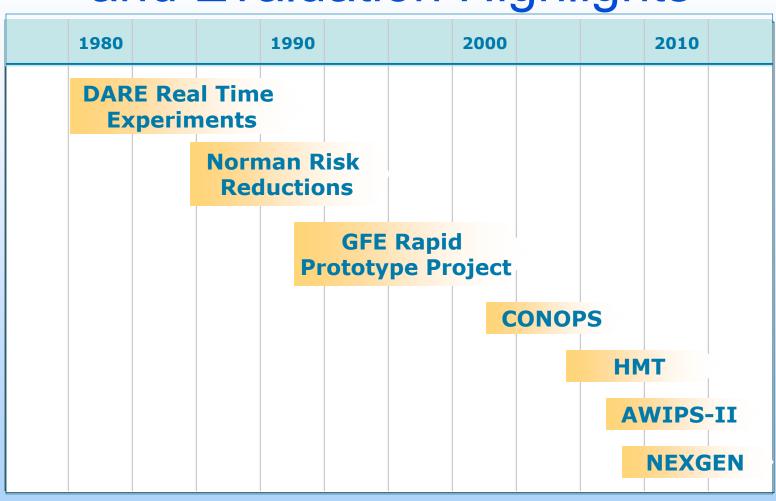
Boulder, CO April 28, 2009



# Global Systems Division Mission

 Incorporating new findings in atmospheric, oceanic, and hydrologic sciences, these systems are designed to improve our understanding of climate and weather at all time scales through new observation techniques, innovative diagnostic and predictive models, advanced computational analysis, and leading-edge workstation display technology

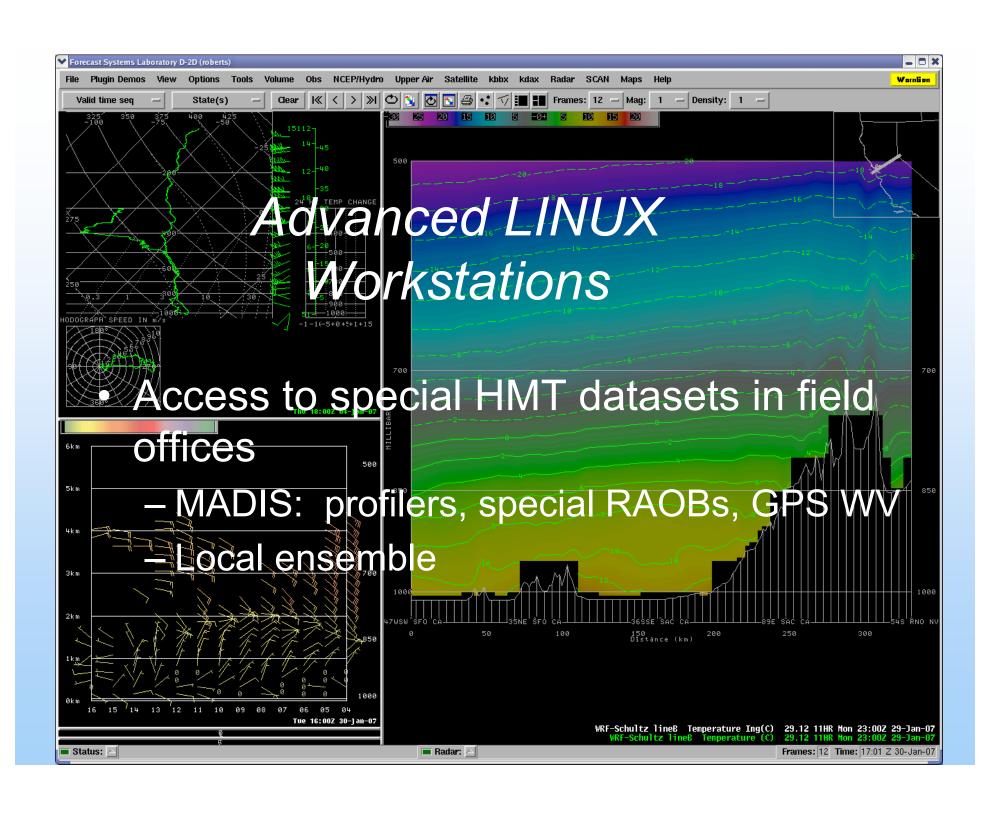
# GSD Workstation Development and Evaluation Highlights



# Project Design Considerations

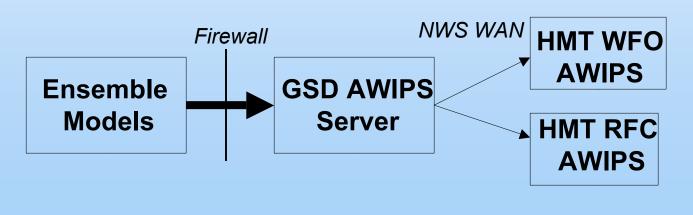
End-to-end integrated process

- Staffing, Hardware/Software/Comms/Security
- Exploratory or Confirmatory
- "Spiral" development method
- Evaluate usability and utility
- Performance, Performance,



#### ISB Goals to Support HMT Activities

- Enable forecasters to evaluate the <u>usability</u> and <u>utility</u> of integrated, advanced HMT datasets on a prototype ALPS workstation.
- Demonstrate a distributed database model in a NWS operational setting.





#### HMT Results '06/'07 and '07/'08 field seasons

- Workstations successfully deployed at four offices (Sacramento WFO and RFC, Monterey WFO and Reno WFO)
- Distributed database smart-pull model tested.
  - Initial "Fat Client, Thin Server" (OpenDAP) model >> slow!
  - Model spatial and temporal domain smaller than WFO and RFC areas of responsibility >> *limited* usefulness.
  - MADIS successfully delivering additional surface and upper-air data >> useful for operations.
- ~1000 ensemble model products displayed on ALPS.

#### HMT Results'08/'09 field season

- Workstations deployed at three offices (Sacramento RFC, Monterey WFO and Eureka WFO)
- Distributed database model tested.
  - Initial "Fat Client, Thin Server" model replaced with a "Thin Client, Fat Server" model >> improved performance!
  - Model spatial and temporal domain enlarged to WFO and RFC areas of responsibility >> improved usefulness!
  - MADIS successfully delivering additional surface and upper-air data >> improved usefulness!

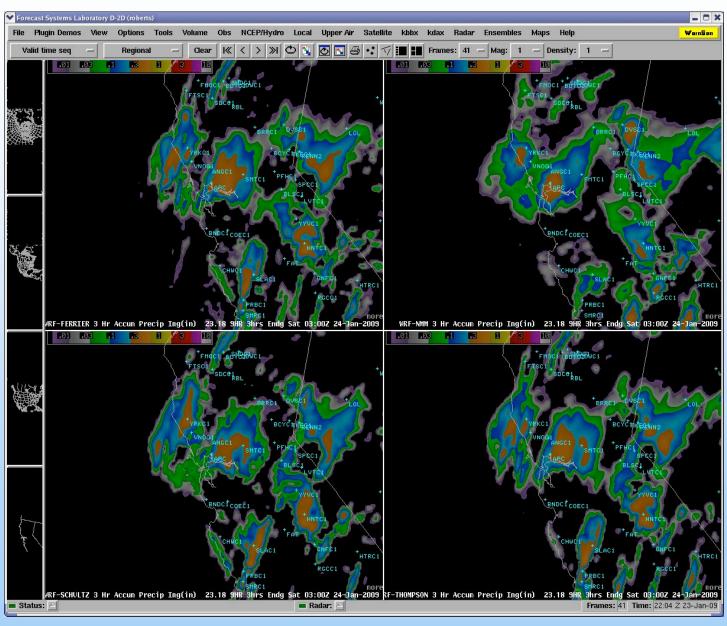


New Client/Server Model

### ALPS Currently deployed at 2 WFOs and the California-Nevada River Forecast Center (CNRFC)



# **ALPS Ensemble Display Example**



#### 09/10 HMT Plans

- Integration of model fields into Graphical Forecast Editor at sites.
- "Smart-push" capability.
- Distributed database model refined.
  - Test performance improvements.
  - Include additional surface reports via MADIS.
- Test ensemble model evaluation techniques.
- HMT SE
- Continue to gather user feedback.



#### **Further Information**

#### http://www-md.fsl.noaa.gov/eteam/

Lusk, C.M., P.C. Kucera, W.F. Roberts, L.E. Johnson, 1999: The Process and Methods Used to Evaluate Prototype Operational Hydrometeorological Workstations. Bulletin of the American Meteorological Society, 80, 57-65.

# Thank you!

